



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,238	10/26/2001	Carlos A. Gonzalez	884.535US1	5267

7590 09/29/2003

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O Box 2938  
Minneapolis, MN 55402

EXAMINER

MITCHELL, JAMES M

ART UNIT	PAPER NUMBER
2827	

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/003,238	GONZALEZ ET AL.
	Examiner James M. Mitchell	Art Unit 2827

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 30 June 2003.
- 2a) This action is FINAL.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.
- 4) Claim(s) 22-29 and 35-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 22-29 and 35-40 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Disposition of Claims**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 05 February 2003 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
 \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
 a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)  
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

- 4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.  
 5) Notice of Informal Patent Application (PTO-152)  
 6) Other: \_\_\_\_\_

## DETAILED ACTION

### ***Response to Amendment***

The amendment filed June 25, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: deletion of the word invention and addition of "subject matter" and "embodiments of". The word subject matter is broader than the word invention that was limited by its claim.

Applicant is required to cancel the new matter in the reply to this Office Action.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 22-29 and 35-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goossen (US 5,975,408) in combination with Garrett (US 2002/0128354).

Goossen (Fig 2, 3) discloses a component package fabricated by depositing an underfill material (13) over a plurality of pads in a component mounting area of a substrate, placing an IC component (14) on the substrate mounting area, such that solder terminals ("bumps, 15" and pad, not labeled) of the component are aligned with corresponding pads and substantially enveloped in the hard underfill material ("cure"; claim 3); and solder situated on terminals and the pads (Fig 3) forming an electrical connection with removal of substantially all potentially inhibiting particles (via underfill) between corresponding terminals and pad.

Goossen does not appear to disclose filler material containing spherical, silica particles ranging between .05 to 40 microns that potentially inhibit a suitable connection between corresponding terminal and pads unless particles are substantially removed, applying suitable pressure to cause the terminals to physically contact the pads and to remove substantially all potentially inhibiting particles from between corresponding terminals and pads wherein applying suitable pressure and heat are performed concurrently by apparatus, melting solder between the terminals and pads which when cooled results in an electrical and mechanical connection.

Garrett utilizes an underfill comprising 70% spherical silica filler in an underfill (Abstract; Par. 0009) with a particle ranging between .05 to 40 microns (Page 3, Base Formulation Table).

It would have been obvious to one of ordinary skill in the art to modify the underfill of Goosen by incorporating filler containing spherical, silica particles, in order to reduce moisture adsorption (Par. 0019).

With respect to claims product by process claims such as "applying suitable pressure to cause the terminals to physically contact the pads and to remove substantially all potentially inhibiting particles from between corresponding terminals and pads", "applying suitable pressure and heat are performed concurrently by apparatus," or "pads are pre-coated with solder... applying heat," the prior art structure is the same as the claimed invention. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

#### ***Response to Arguments***

Applicant's arguments with respect to Goossen not having filler particles have been considered but are moot in view of the new ground(s) of rejection, while the arguments based on Garrett not having particles that potentially inhibit a suitable connection between the corresponding terminals and pads unless particles are substantially removed is discussed.

Applicant admits through its disclosure that silica is a particle that inhibits connection between terminals (Claim 22 and 26), therefore since silica is capable of potentially inhibiting connections, the incorporation of silica particles into an underfill meets the structural limitations and characteristics as defined by the claim.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James M. Mitchell whose telephone number is (703) 305-0244. The examiner can normally be reached on M-F 10:30-8:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (703) 308-1233. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



*JM*  
JUL 3 2004  
DAVID E. GRAYBILL  
PRIMARY EXAMINER